APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
GODDARD, BRIAN D

ART UNIT	PAPER NUMBER
2171	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/811,008	ANWAR, MOHAMMED S.
	Examiner	Art Unit	
	Brian Goddard	2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>*17 May 2004*</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>*2,16,17 and 19-30*</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>*2,16,17 and 19-30*</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>*16 March 2001*</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>*1/16/2004.*</u>

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

1.   This communication is responsive to the Request for Continued Examination and

Amendment B, filed 17 May 2004.

2.   Claims 2, 16, 17 and 19-30 are pending in this application. Claims 21, 29 and 30

are independent claims. In Amendment B, claims 1, 3-15 and 18 were cancelled,

claims 21-30 were added, and claims 2, 16, 17, 19 and 20 were amended. This action

is non-final.

Claim Objections

3.   Claims 21 and 23 are objected to because of the following informalities: The

word "extract" should be 'extracting' in the second line of claim 21 in order to recite a

proper method step with the grammar of this claim. The word "generate" should be

'generating' in the second line of claim 23 in order to recite a proper method step within

the grammar of this claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

4.   Claims 2 and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent No. 6,006,225 to Bowman et al. in view of U.S. Patent No. 5,692,107

to Simoudis et al., and further in view of the article entitled "Discovering Web Access

Patterns and Trends by Applying OLAP and Data Mining Technology on Web Logs" by

Zaiane et al.

Referring first to claim 21, Bowman teaches a system and method for analyzing a

query and generating related results as claimed. See Figures 1 & 5-9 and the

corresponding portions of Bowman's specification for this disclosure. Refer specifically

to Figures 7-9 and the corresponding portions of the specification for the disclosure of

the claimed invention. In particular, Bowman teaches a method for analyzing a query

and generating related results comprising:

extracting [Step 710] keywords ['term in the query'] from the query;

generating [Steps 720 – 770] at least one term ['the top X related terms'] related

to at least one keyword;

supplying the keywords and terms to a search engine ['the corresponding

modified query is submitted to the search engine' (Column 14, lines 1-12)];

generating, within the search engine, a request or a plurality of requests for

results related to the keywords and terms [See Column 5, lines 61-64 & Column 14,

lines 25-45];

generating, within the search engine, at least one result related to the query

['identify a subset of query result items that include this related term' (Column 14, lines

25-45)] and at least one question [refined related query 910 (iterative...user can repeat

indefinitely) 'This process could be repeated using additional related terms...' (Bowman:

Column 14, line 32 et seq.)] related to the query derived from the related results [See

Fig. 4], where the question is adapted to enhance information retrieval associated with

the query [See Figs. 7-9]; and

displaying [See Fig. 9] the at least one related result and the at least one

question.

Bowman does not explicitly disclose that the search engine includes "a data

mining routine" to which the keywords and related terms are supplied, or a middleware

interface for converting the request(s) and result(s) as claimed. However, Bowman

does disclose that "the catalog [database(s)] contains millions of items" and "it is

important that the site provide an efficient mechanism for assisting users in locating

items." (Column 4, lines 65-67) Furthermore, Bowman discloses the importance of

discovering trends in the data and its usage. See column 7, line 60 – column 8, line 14

for this disclosure. These two points provide suggestion for using a data mining routine

for locating trends and gathering other statistics about the data within the catalog

database(s). Bowman also suggests that, "The search refinement methods of the

invention may be implemented, for example, as part of...a document retrieval system,

or any other type of computer system that provides searching capabilities to a

community of users." (Column 4, lines 35-43) This provides direct motivation for

combining Bowman's search refinement system with any type of search system,

including data mining routines.

Furthermore, the Bowman reference cites Zaiane on page 2, providing direct

suggestion for combining Bowman's technology with data mining technology. Zaiane

discloses systems and methods similar to those of Bowman, where data mining

technology is applied to web-based databases such as those used in Bowman.

Simoudis discloses a data mining system and method for extracting patterns and

relations from data stored in multiple databases to generate predictive models (trends).

See Figures 1-3 and the corresponding portions of Simoudis' specification for this

disclosure. Furthermore, Simoudis' data mining engine accepts query terms (keywords

or other terms) as input for the data mining (Steps 210-214); supplies the request(s) to a

middleware interface [106] to at least one multi-dimensional database [114]; converts

[Step 206 (through API 112)] the request(s) to corresponding database request(s);

generates database responses; forwards the database responses to the middleware;

converts the database responses to a data mining response; and supplies the data

mining response to the data mining routine [See Figs. 1-2 for all of above] as claimed.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made incorporate Simoudis' data mining engine (of Fig. 1, including the

middleware interface) into Bowman's Web Server (131) or Query Server (132) and to

supply the keywords and related terms generated by Bowman's search refinement

system to the data mining engine in order to generate trends and gather other statistics,

from any type of searchable database(s) such as those of Simoudis (114) or Bowman

(133), relating to those keywords and related terms. One would have been motivated to

do so because of the suggestions provided by Bowman and Zaiane, as described

above.

Referring to claim 2, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figure 7 and the corresponding portion of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, "wherein the related keyword generating step comprises polling [Steps 720-730] a database [Query Correlation Table 137] for terms related to at least one keyword" as claimed.

Referring to claim 22, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising "selecting, prior to the data mining routine supply step, at least one generated term ['the user clicks on one of these links' (Column 14, line 6)]" as claimed.

Referring to claim 23, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figure 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising after the request generating step, generating, within the data mining routine, an "as is" request corresponding to the query excluding the terms [request to obtain results (920) without using the related terms] as claimed.

Referring to claim 24, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 21 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this

disclosure. Bowman's (as modified by Simoudis & Zaiane) search/mining refinement is iterative such that the system continues to generate related terms and related questions [queries] as long as the user continues to select the refined queries. Bowman's method teaches repeating the steps of selecting a refinement [910] (question or sub-question) and obtaining the related results [920] until the user is satisfied with the results and chooses to stop the refinement process. In particular, Bowman v. Simoudis & Zaiane teaches the method of claim 21, as above, further comprising:

"selecting one of the displayed questions ['the user clicks on one of these links' (Column 14, line 6)];

generating...[See discussion of claim 21 above]; ...

generating, within the data mining routine, at least one result [920] related to the question and at least one sub-question [further refined related query 910 (See Bowman Fig. 9 and column 14, line 32 et seq.)] related to the question derived from the related results, where the sub-question is adapted to enhance information retrieval associated with the query; and

displaying...[See discussion of claim 21 above]" as claimed.

Referring to claim 25, the system and method of Bowman in view of Simoudis and Zaiane as applied to claim 24 above discloses the invention as claimed. See the discussion regarding claims 21 and 24 above for the details of this disclosure. Bowman v. Simoudis & Zaiane teaches the method of claim 24, as above, further comprising the steps of:

"selecting one of the sub-questions ['the user clicks on one of these links'

(Bowman: Column 14, line 6)]; and

repeating all but the selecting step of claim 24 [query refinement process

(iterative...user can repeat indefinitely) 'This process could be repeated using additional

related terms...' (Bowman: Column 14, line 32 et seq.)]" as claimed.

Referring to claim 26, the system and method of Bowman in view of Simoudis

and Zaiane as applied to claim 21 above discloses the invention as claimed. See

Figure 2 and the corresponding portion of Bowman's specification, and the discussion

regarding claim 21 for the details of this disclosure. Bowman's (as modified by

Simoudis and Zaiane) query constraints include containment constraints (exact name,

start of last name, exact title, etc.), grouping constraints (prefixes: title, author, subject,

etc.), and/or data constraints (particular item genre out of the entire catalog – books in

the example provided) as claimed.

Referring to claim 27, the system and method of Bowman in view of Simoudis

and Zaiane as applied to claim 21 above discloses the invention as claimed. See

Figure 1 and the corresponding portion of Simoudis' specification for this disclosure.

Simoudis' data mining library [104 & 104'], as included in the combined system,

includes "a cluster DMR" (Clustering 104') as claimed.

Referring to claim 28, the system and method of Bowman in view of Simoudis

and Zaiane as applied to claim 21 above discloses the invention as claimed. See

Figures 1 & 4 and the corresponding portions of Simoudis' specification for this

disclosure. Simoudis' databases (114) can include any type of database having an

associated database management system (DBMS), including relational databases as

disclosed in the example of Figure 4. See column 4, lines 26-34; column 5, lines 59-65;

and claim 3 for this disclosure.

5.   Claims 16-17, 19-20 and 29-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bowman in view of Simoudis and Zaiane as applied to claim 21

above, and further in view of U.S. Patent No. 6,266,668 to Vanderveldt et al.

        Referring first to claim 29, the system and method of Bowman in view of

Simoudis and Zaiane as discussed above with regard to claim 21 discloses the

invention as claimed. See Figure 1 and the corresponding portion of Bowman's

specification, Figure 1 and the corresponding portion of Simoudis' specification, and the

combination of these systems as applied in claim 21 above. In particular, the

combination of Bowman and Simoudis teaches "a system comprising:

        a remote digital processing unit [Bowman: User Computers 110] including an

operating system, communication routines, and a user interface having a query

construction routine [Bowman: Figure 2] and a results display routine [Bowman: Figure

9];

        an application server [Bowman: Web Server 131 and Query Server 132]

including an operating system, communication routines, and a query information

retrieval content enhancing sub-system [Bowman: Related Term Selection Process 139

& Simoudis: Data Mining Engine of Figure 1 (See claim 1 above)] having a controller

[Bowman: 132 & Simoudis: 106], a library of database interfaces [Simoudis: 112], a

library of data mining routines [Simoudis: 104 & 104'], a database (DB) middleware

component [Simoudis: 105 & 105' & 106] and a query/results database [Bowman: 137],

where the subsystem...[See discussion regarding claim 21 above];

a database server [Simoudis: 106] including an operating system, communication

routines, a database [Simoudis: 114] and database services [Simoudis: 112]...[See

discussion regarding claim 21 above]; and

a network [Bowman: 120] interconnecting the remote digital processing unit, the

application server and the database server [Bowman: See Figure 1] as claimed.

Neither Bowman nor Simoudis explicitly discloses an operating system and

communication routines in each of the computer systems, as claimed. Furthermore,

neither reference teaches "a user profiler" as claimed.

Vanderveldt discloses a data mining system and method similar to that of

Simoudis. See Figures 1-3 and the corresponding portions of Vanderveldt's

specification for this disclosure. In particular, Vanderveldt teaches the inclusion of

operating systems and communications software (routines) in typical computer systems

used to "execute the web pages". See column 9, lines 41-53 for this disclosure.

Vanderveldt also discloses a user profiler ['neural network trained upon the user profile'

(Column 4, lines 64-65)] for extracting information from user profiles to be used in the

data mining.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include operating systems and communications software, such

as those of Vanderveldt, into the computer systems of Bowman in view of Simoudis and

Zaiane above. One would have been motivated to do so in order to execute the web-based functions of Bowman and Simoudis' methods, as deemed necessary by Vanderveldt's disclosure.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Vanderveldt's user profiler into the data mining subsystem of Bowman in view of Simoudis and Zaiane. One would have been motivated to do so because this would provide more effective results by including each individual user's search tendencies (represented by the profile) into the data mining routine as effectively as possible.

Referring to claim 16, the system and method of Bowman in view of Simoudis, Zaiane and Vanderveldt as applied to claim 29 above discloses the invention as claimed. See Figure 1 and the corresponding portion of Simoudis' specification for this disclosure. Simoudis' data mining library [104 & 104'], as included in the combined system, includes "a cluster DMR" (Clustering 104') as claimed.

Referring to claim 17, the system and method of Bowman in view of Simoudis, Zaiane and Vanderveldt as applied to claim 29 above discloses the invention as claimed. See Figures 1 & 4 and the corresponding portions of Simoudis' specification for this disclosure. Simoudis' databases (114) can include any type of database having an associated database management system (DBMS), including relational databases as disclosed in the example of Figure 4. See column 4, lines 26-34; column 5, lines 59-65; and claim 3 for this disclosure.

Claim 30 is rejected on the same basis as claim 29, in light of the discussion

regarding claims 21 above. See the discussions regarding claims 21 and 29 for the

details of this disclosure.

Claims 19 and 20 are rejected on the same basis as claims 16 and 17

respectively, in light of the basis for claim 30 above. See the discussions regarding

claims 16-17, 21, 29 and 30 for the details of this disclosure.

Response to Arguments

6.   Applicant's arguments filed 17 May 2004 have been fully considered but they are

not persuasive.

Referring to applicant's remarks on pages 9-10 regarding the section 103

rejection of the independent claims: Applicant argues that Bowman has nothing to do

with data mining, and seemingly argues that there is therefore no motivation or

suggestion to combine. Further, applicant argues that Simoudis does not teach or

suggest a discovery process based on questions constructed from the information

retrieved from the data mining process.

In response to applicant's arguments against the references individually, one

cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.

1986). It is the combination of teachings from Bowman and Simoudis (that is the

combined teachings presented by the references and what they would suggest to one of

ordinary skill in the art) that render the claimed invention obvious, not just a bodily

incorporation of structural elements from one invention to another.

Furthermore, the examiner disagrees with applicant's assertion that Bowman has

nothing to do with data mining. Clearly Bowman teaches data mining, even in its most

rudimentary form, of the daily query log to generate the query correlation tables. Even if

applicant does not believe Bowman's "data analysis" to be data mining, Bowman

explicitly states, "The search refinement methods of the invention may be implemented,

for example, as part of... a document retrieval system, or any other type of computer

system that provides searching capabilities to a community of users." (Column 4, lines

35-43) This provides direct motivation for combining Bowman's search refinement

system with any type of search system, including data mining routines. Bowman also

cites the Zaiane reference (See above), which provides further motivation to combine

Bowman's teachings with a data mining system.

Finally, the detailed steps of usage for the middleware interface added in new

claims 21, 29 and 30 are all taught by Simoudis as shown above, and are therefore

rendered obvious by the combination. The combination of Bowman and Simoudis,

further motivated by Zaiane, therefore teaches each and every element of applicants'

claimed invention.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

U.S. Patent No. 6,502,091 to Chundi et al. and Patent Application Publication No.

2002/0091661 to Anick et al. are each considered pertinent to applicant's disclosure

and portions of applicant's claimed invention.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian Goddard whose telephone number is 703-305-

7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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bdg
3 August 2004

FRANTZ COBY
PRIMARY EXAMINER